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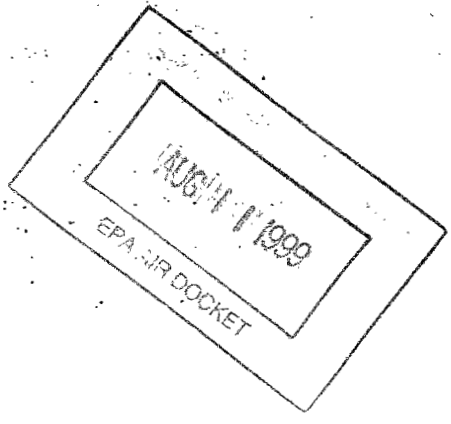
40 CFR Part 148

Underground Injection Control Program; California List and Certain "First Third" Wastes; Final Rule



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 148

[FRL 3420-7]

Underground Injection Control Program; Hazardous Waste Disposal Injection Restrictions, Phase Two; California List and Certain "First Third" Wastes

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is today promulgating rules implementing the Congressionally mandated prohibitions on the underground injection of selected hazardous wastes. This proposed action is being taken in response to amendments to the Resource Conservation and Recovery Act (RCRA) enacted through the Hazardous and Solid Waste Amendments of 1984 (HSWA).

Today's promulgation establishes effective dates for "California list" wastes (as defined by section 3004(d) of RCRA), as well as certain wastes prohibited under section 3004(g) of RCRA.

The general framework for implementing the land disposal restrictions for injection of hazardous wastes was promulgated on July 26, 1988 (53 FR 28118 *et seq.*); that rule should be consulted for a more thorough explanation of the Agency's rationale concerning the implementation of the "no migration" standard and other general requirements.

DATES: This final rule is effective August 5, 1988.

ADDRESSES: The official record for this rulemaking is located in Room 1013C East Tower, Office of Drinking Water (WH-550), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, and is available for viewing from 9:30 a.m. to 3:30 p.m., Monday through Friday, excluding legal holidays. The public must make an appointment to review docket materials by calling Eric Callisto at (202) 382-5508.

FOR FURTHER INFORMATION CONTACT: John Atcheson, Office of Drinking Water (WH-550), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 382-5508.

SUPPLEMENTARY INFORMATION:

Preamble Outline

I. Background

A. Statutory Authority

The Hazardous and Solid Waste Amendments of 1984 (HSWA), enacted on November 8, 1984, impose substantial new responsibilities on those who handle hazardous waste. The amendments prohibit the continued land disposal of hazardous waste beyond specified dates, unless the Administrator determines that the prohibition is not required in order to protect human health and the environment for as long as the wastes remain hazardous (RCRA section 3004 (d)(1), (e)(1), (f)(2), (g)(5)). Congress established a separate schedule in section 3004(f) for making determinations regarding the disposal of dioxins and solvents and the list of wastes specified in section 3004(d)(2), termed the "California list", in injection wells.

Wastes meeting the treatment standards set by EPA under section 3004(m) of RCRA may be land disposed. The statute requires EPA to set "levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized" (RCRA section 3004(m)(1)).

Land disposal prohibitions are effective immediately upon promulgation of rules banning disposal unless the Agency sets another effective date based on the earliest date that adequate alternative treatment, recovery, or disposal capacity which is protective of human health and the environment will be available (RCRA section 3004(h) (1) and (2)). However, these effective date variances may not exceed 2 years beyond the otherwise applicable statutory effective date. In addition, two 1-year, case-by-case extensions of the effective date may be granted under certain circumstances (RCRA section 3004(h)(3)).

For the purposes of the land disposal restrictions program, the statute specifically defines land disposal to include, but not be limited to, any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome or salt bed formation, or underground mine or cave (RCRA section 3004(k)). The statute also sets forth a series of deadlines for Agency action.

The land disposal prohibitions apply to all hazardous wastes identified or listed under RCRA section 3001 as of November 8, 1984, the date of enactment of HSWA. For any hazardous waste identified or listed under RCRA section 3001 after November 8, 1984, EPA is required to make land disposal restriction determinations within 6 months of the date of identification or listing (RCRA section 3004(g)(4)). However, the statute does not impose an automatic prohibition on land disposal if EPA misses a deadline for any newly listed or newly identified waste.

1. Section 3004(f)

Section 3004(f) addresses the disposal by injection of solvents, dioxins, and California list wastes. Specifically, this section requires the Administrator to promulgate rules prohibiting the disposal of such wastes into wells if it

may "reasonably be determined that such disposal may not be protective of human health and the environment for as long as the wastes remain hazardous * * *". If EPA does not determine those instances where disposal would be protective, the injection of these wastes is prohibited on August 8, 1988, under section 3004(f)(3).

2. Section 3004(g)

Section 3004(g) of RCRA applies to all methods of land disposal. It requires the Agency to set a schedule for making land disposal restriction decisions for all hazardous wastes listed in 40 CFR Part 261 under RCRA section 3001(c) as of November 8, 1984, other than the wastes referred to in section 3004 (d) and (e). EPA promulgated this schedule on May 28, 1986 (51 FR 19300 *et seq.*).

Section 3004(g)(5) provides that the regulation promulgated by the Administrator must prohibit methods of land disposal except for methods "which the Administrator determines will be protective of human health and the environment for as long as the waste remains hazardous * * *".

Furthermore, the section provides that, except for wastes which comply with the standards expressed in section 3004(m), a method of land disposal may not be determined to be protective of human health and the environment, "unless, upon application by an interested person, it has been demonstrated to the Administrator, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous."

3. Standard for Demonstrating Protection of Human Health and the Environment

On July 26, 1988, the Agency promulgated rules which applied the same standard to injection of hazardous waste, regardless of whether the waste was covered under section 3004(f) or section 3004(g) (53 FR 28118, *et seq.*). A brief summary of that rule follows.

As noted in the rule, section 3004 (f) and (g) do not use the same language, but both require a demonstration that injection is protective of human health and the environment. Under section 3004(g) it is clear that such a demonstration must include a showing of "no migration" from the injection zone for as long as the wastes remain hazardous. EPA believes that the "no migration" standard of section 3004(g) helps define what is protective of human health and the environment under section 3004(f). Section 3004(g), by its terms, restricts the injection of certain hazardous wastes into injection wells. Since the wastes covered under section 3004(f) are just as hazardous to human health and the environment as those under section 3004(g), EPA believes that injection of either set of wastes should be subject to the same standard. Thus, the Agency believes that the "no migration" demonstration should be similar for all injection wells regardless of the type of injected waste, and that the "no migration" standard should apply to all facilities injecting hazardous waste regardless of which section of the statute they are subject to.

B. Effect on State UIC Primacy

States need not seek authorization to administer the land disposal restrictions program codified in Part 148 to maintain Underground Injection Control (UIC) primacy. These provisions are in effect in all States as a matter of Federal law. However, the Agency expects that State agencies which have primacy for the UIC program will wish to implement Part 148, and receive authorization to grant "no migration" exemptions from land disposal restrictions as well as case-by-case extensions under section 3004(h)(3). However, before such authorization can be granted, the State would have to demonstrate that it has the authority to implement section 3004 (f), (g) and (h) (3) of RCRA, and receive authorization to do so. A thorough discussion of the conditions under which such authorization can take place can be found in 50 FR 28728 *et seq.*, July 15, 1985, 51 FR 40618 *et seq.*, Nov. 7, 1986, and 52 FR 25783 et seq., July 8, 1987. In addition, where jurisdiction for UIC and RCRA do not reside in the same State agency, EPA will require a Memorandum of Understanding between the two entities, clearly outlining responsibilities for granting exemptions.

C. Summary of the Land Disposal Restrictions Framework

1. Regulatory Framework

On November 7, 1986, EPA promulgated a final rule (51 FR 40572) establishing the regulatory framework for implementing the land disposal restrictions. Corrections to the November 7, 1986, final rule were included in a June 4, 1987, Federal Register notice (52 FR 21010) to clarify the Agency's approach to regulating restricted wastes. Some changes to the framework were also made in the July 8, 1987, rulemaking on the California list wastes (52 FR 25760). Rules which specifically address disposal of hazardous waste through injection wells were promulgated on July 26, 1988 (53 FR 28118 *et seq.*).

By each deadline, according to a schedule established either in the statute under section 3004 (d), (e), or (f) (or promulgated on May 28, 1986 (51 FR 19300), for section 3004(g) wastes), the Agency intends to promulgate the applicable treatment standards for each hazardous waste. Restricted wastes may be land disposed in a Subtitle C facility if they meet the applicable treatment standards.

After the effective dates of the prohibitions, wastes that do not comply with the applicable treatment standards will be prohibited from continued disposal in injection wells unless a petition has been approved under Subpart C of Part 148 demonstrating that continued management of those hazardous wastes in the injection well is protective of human health and the environment for as long as the waste remains hazardous. Also, § 148.4 provides that EPA may, on a case-by-case basis, grant an extension to the effective date according to the procedures outlined in § 268.5. An extension may not exceed one year, and the Administrator may not renew an extension more than once.

2. Applicability

Land disposal is defined as including, but not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome or salt bed formation, or underground mine or cave.

The land disposal restrictions apply prospectively to the affected wastes. In other words, hazardous wastes placed into land disposal units after the effective date of a statutory or regulatory prohibition are subject to the restrictions, but wastes land-disposed prior to the applicable effective date are not required to be removed or exhumed for treatment. Similarly, the restrictions on storage of affected hazardous wastes apply only to wastes placed in storage after the effective date of an applicable land disposal restriction. If, however, wastes subject to the land disposal restrictions are removed from either a storage unit or land disposal unit after the effective date, such wastes would be subject to the restrictions and treatment standards.

The provisions of the land disposal restrictions apply to wastes produced by all generators of over 100 kilograms of hazardous waste (or greater than 1 kg of acute hazardous waste) in a calendar month; however, wastes produced by generators of less than 100 kilograms of hazardous waste (or less than 1 kg of

acute hazardous waste) per calender month are exempt from the land disposal prohibitions.

The land disposal restrictions apply to both interim status and permitted facilities. All permitted facilities are subject to the restrictions regardless of existing permit conditions. The regulations at 40 CFR 270.4(a) have been amended so that compliance with a RCRA permit (including permits-by-rule under § 270.60(b)) no longer constitutes compliance with Subtitle C as a whole.

3. Development of RCRA Section 3004(m) Treatment Standards

In the November 7, 1986, rulemaking, EPA promulgated a technology-based approach to setting treatment standards under section 3004(m). These treatment standards are based on the performance of the best demonstrated available technology (BDAT) identified for the hazardous constituents.

In developing the treatment standards, EPA first characterizes the wastes and establishes treatability groups for wastes having similar physical and chemical properties, and thus, similar treatability characteristics. Once the treatability groups are established, EPA collects and analyzes data on identified technologies used to treat the wastes in each treatability group.

EPA identifies those technologies that are "demonstrated" by full-scale operation. The demonstrated technologies are then evaluated to determine whether they may be considered "available". Under the land disposal restrictions framework initially used, to be considered "available", the Agency determined whether the demonstrated technologies: (1) Are commercially available, and (2) substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized.

As explained in the April 8, 1988, proposal, the Agency is reevaluating the role of risk in making capacity determinations. A thorough description of this issue can be found at 53 FR 11774, April 8, 1988, and 53 FR 17606, May 17, 1988.

The performance data on the demonstrated available technologies are evaluated to determine whether the data are representative of well-designed and well-operated treatment systems. Only data from well-designed and well-operated systems are included in determining best demonstrated available technology (BDAT). Such performance data are then statistically analyzed to determine the performance level representative of treatment by the candidate technology. EPA may set the treatment standards as either a specific technology or as a performance level of treatment monitored by measuring the concentration level of the hazardous constituents in the waste or treatment residual, or an extract of the waste or treatment residual. When possible, EPA would prefer to set a treatment standard as a performance level, allowing the regulated community greatest flexibility in meeting the treatment standard. When treatment standards are set as performance levels, the regulated community may use any technology (not otherwise prohibited, e.g., dilution) to treat the waste to meet the treatment standard, and is not limited to only those technologies which have been considered in determining BDAT.

In the final rule prohibiting land disposal of solvents and dioxins by means other than injection (52 FR 40593, November 7, 1986), EPA promulgated regulations requiring the regulated community to use the Toxicity Characteristic Leaching Procedure (TCLP) (Part 268, Appendix I) when developing the extract from the waste or treatment residual. This extract must be analyzed to determine whether the concentrations of hazardous constituents meet the applicable treatment standards (which are expressed in Table CCWE at § 268.41 as constituent levels in the TCLP extract). The TCLP has only been promulgated for monitoring compliance with the treatment standards established for the F001–F005 spent solvent wastes and the F020–F023 and F026–F028 dioxin contaminated wastes treatment standards, and will only be used when the treatment standards are expressed as concentration of hazardous constituents in a waste (or treatment residual) extract.

4. Determination of Alternative Capacity and Ban Effective Dates

a. Establishing Effective Dates. The manner in which effective dates are established differs according to what sections of the statute govern particular wastes. Solvents, dioxins, and California list wastes, which are covered under section 3004 (d), (e), and (f), are subject to the so-called "hard hammer". Under this statutory scheme, the waste is automatically banned upon the statutory deadline, regardless of whether the Agency acts to set BDAT or fails to prohibit disposal of such wastes (although the Agency may, under section 3004(h)(2), provide variances for up to 2 years based on lack of alternate capacity). The statutory deadline prohibiting land disposal of these wastes by injection is August 8, 1988.

Pursuant to section 3004(g), the Agency must establish a schedule by which any hazardous wastes not covered under section 3004 (d), (e), or (f) are banned. The statute mandates that these scheduled wastes be addressed in three stages: August 8, 1988; June 8, 1989; and May 8, 1990. It further states that the wastes should be placed in one of these "thirds" based on their intrinsic hazard and volume. High-volume, highly hazardous wastes are placed in the first third; wastes with relatively lower hazards or which are produced in lower volumes are placed in the later thirds. Unlike the wastes subject to the "hard hammer", there is no immediate statutory ban on all forms of land disposal in cases where the Agency fails to take action. If EPA fails to establish prohibition dates for the first two "thirds" by the August 8, 1988 or June 8, 1989 deadlines, respectively, the wastes in the first two "thirds" are not banned by the statute from land disposal until May 8, 1990, unless EPA issues regulations establishing an earlier effective date for the ban. If these wastes were to be managed in a landfill or surface impoundment, the units would have to comply with the requirements of section 3004(o) during the period the wastes were not subject to a ban.

b. Effective Dates Based on National Capacity Determinations. The Agency has the authority to grant national variances (for up to a 2-year maximum) from the statutory effective date based upon a lack of adequate alternative capacity. To make this determination, EPA considers, on a nationwide basis, both the physical capacity of alternative treatment technologies (permitted and interim status facilities that are expected to be on-line by the effective date) and the quantity of restricted wastes generated. If adequate capacity is available, the restriction on land disposal of that waste goes into effect upon the statutory deadline. If there is a significant shortage of national capacity, EPA may set an alternative effective date based on the earliest date on which capacity for treatment that is protective of human health and the environment will be available. During the period of the national variance, the waste may be land disposed in compliance with § 268.5(h)(2).

c. Case-by-Case Extensions. The Agency will consider granting up to a one-year extension (renewable only once) of a ban effective date on a case-by-case basis to an applicant who

applies for such an extension. The applicant must demonstrate (among other things stated in § 268.5) that a good faith effort has been made to locate and contract with treatment, recovery, or disposal facilities nationwide to manage his wastes, and that he has entered into a binding contractual commitment to construct or otherwise provide alternative capacity that cannot reasonably be made available by the applicable effective date due to circumstances beyond his control. During the period of the extension, the waste may be land disposed in compliance with § 268.5(h)(2).

5. Exemption for Treatment in Surface Impoundments

Wastes that would otherwise be prohibited from one or more methods of land disposal may be treated in a surface impoundment that meets certain technological requirements (§ 268.4(a)(3)) as long as treatment residuals that fail to meet the applicable treatment standard or prohibition level are removed within one year of entry into the impoundment and are not placed into any other surface impoundment. The owner or operator of such an impoundment must certify to the Regional Administrator that the technical requirements have been met and must also submit a copy of the waste analysis plan that has been modified to provide for testing treatment residuals in accordance with § 268.4.

As promulgated in the California list final rule for surface disposed wastes (52 FR 25760), evaporation of hazardous constituents as the principal means of treatment is not considered treatment for the purposes of this exemption (§ 268.4(b)).

6. Dilution Prohibition

As established in the November 7, 1986, rule, and modified in the July 8, 1987, rule, dilution is prohibited as a substitute for adequate treatment. This includes dilution to achieve compliance with a treatment standard or compliance level, as well as dilution to circumvent the effective date of a prohibition, to otherwise avoid or circumvent a land disposal prohibition (§ 268.3). However, dilution is permitted only if it is a necessary part of the treatment process.

7. Storage Prohibition

Storage of prohibited wastes is banned except where storage is solely for the purpose of accumulating such quantities of wastes as are necessary to facilitate proper treatment, recovery, or disposal (§ 268.50). RCRA-permitted treatment, storage, and disposal facilities may store restricted wastes for as long as needed, provided such storage is solely for this purpose. However, if the facility stores a restricted waste for more than one year, it bears the burden of proof that such storage was solely for this purpose (no notification of storage exceeding one year is required). For storage of less than one year, EPA bears the burden of proof that such storage was not for the sole purpose of accumulating such quantities of wastes as are necessary to facilitate proper treatment, recovery, or disposal. This statutory prohibition on storage does not apply to RCRA wastes which meet the treatment standard, wastes which have been granted a variance or an extension to the effective date, and stored wastes which are the subject of a "no migration" exemption under § 148.20.

8. Variance From the Treatment Standard

EPA established the variance from the treatment standard to account for those wastes which are unable to meet the applicable treatment standards, even if well designed and well operated systems are used (§ 268.44). Petitions must demonstrate (among other things) that the waste is significantly different from the wastes evaluated by EPA in setting the treatment standard and that the waste cannot be treated in compliance with the applicable treatment standard. This variance procedure could establish a new waste treatability group and corresponding BDAT treatment standard that would apply to all wastes meeting the criteria of the new waste treatability group.

9. "No Migration" Exemption

Section 148.20 as published (53 FR 28118 *et seq.*) outlined in detail the Agency's plan for implementing the "no migration" provisions of RCRA with respect to injected wastes. Briefly, a petitioner would be required, through modeling, to demonstrate there would be no migration of hazardous constituents from the injection zone for as long as the waste remained hazardous. This demonstration could be made in one of two ways. The operator could demonstrate, using flow and transport models, that the site conditions are such that injected fluids would not migrate vertically out of the injection zone or migrate within the injection zone to a point of discharge for a period of ten thousand years. Alternatively, an owner or operator could show that the waste is transformed, due to geochemical processes, for example, in such a manner that it would become nonhazardous at the edge of the injection zone. In keeping with existing policy, the Agency used health-based standards, such as Maximum Contaminant Levels (MCLs), to define hazardous levels. A demonstration based on geochemical modeling could not rely on attenuative mechanisms occurring outside the injection zone.

Also, the operator must demonstrate that the well was in compliance with the substantive area of review, corrective action, and mechanical integrity requirements of Part 146 as promulgated on July 26, 1988 (53 FR 28118 *et seq.*).

II. Response to Comments

A. General Comments

The majority of the comments received on the proposal strongly supported the Agency's specific decisions on granting variances to individual waste codes. Most of the commenters who objected to the Agency's decisions did so on the basis of the general framework or general assumptions in the capacity analyses, rather than decisions made about a specific waste. These comments are addressed below.

1. On-site Treatment Capacity

Several commenters contended that the Agency ignored or underestimated capacity available from on-site treatment systems. Commenters pointed out that the technology for such systems, particularly in the form of "package" units capable of treating organics or heavy metals, are well developed and available. In a related vein, commenters suggested that the Agency's concern about transportation effectively limiting available capacity was, therefore, overstated because on-site treatment units could substantially reduce the volumes of waste requiring transport. Several of these commenters acknowledged that adequate on-site treatment capacity was not available now, but maintained that it could be developed quickly. These commenters argued that any extension granted should, therefore, be for significantly less than two years. Others concluded that when the capacity of on-site treatment units are considered, there is adequate capacity to treat these injected wastes now.

The Agency recognizes that on-site package units may be available and can be developed, but does not believe that these units will substantially contribute to available capacity for the following reasons. First, as a manufacturer of these systems noted in commenting on these regulations, these units are not

currently available in sufficient numbers. Second, these units often cannot meet the very stringent levels established in EPA's BDAT standards, and, therefore, may not constitute available alternative capacity. Finally, as outlined in the August 27, 1987, rule with regard to injected solvents (52 FR 32450) and in the April 26, 1988, proposal, the Agency expects that extremely large volumes of waste will be generated as a result of CERCLA cleanups and remedial actions taken pursuant to section 3004(u) of RCRA. The capacity required to treat these wastes will, for the next few years, overwhelm any conceivable ability to manufacture package units capable of meeting BDAT standards.

The Agency has employed in recent proposals (52 FR 32450, August 27, 1987) the hierarchy to be used in apportioning available capacity against wastes being generated and disposed. To briefly summarize those allocation decisions, EPA intends to apply against available capacity first those wastes being disposed of in surface units, next wastes resulting from CERCLA or RCRA cleanups, and finally, wastes being injected. The Agency believes this to be the most protective approach from the perspective of protecting human health and/or the environment, and believes it to be consistent with the statutory mandate for the following reasons. Facilities generating wastes from CERCLA and RCRA cleanups, by definition, pose a threat to human health and/or the environment. Congress, in section 1004(b) of RCRA, specifically identified surface impoundments and landfills as the least favored method of waste management. While the statute set up a presumption that generally favored minimization, reuse, and treatment over land disposal, it clearly indicated that a hierarchy existed within land disposal (See S. Rpt. 284 98th Cong. 1st Sess. at 14 and Cong. Record S. 8153, July 25, 1984). Moreover, section 3004 (f) and (g) applied substantial demands on alternative treatment capacity which, in some cases, compete with requirements elsewhere in the amendments. Corrective action is an example. Given the established threat to human health or the environment which cleanup sites pose, and the clear hierarchy established in the statute, the Agency believes this framework for apportioning available capacity to be appropriate. The Agency will, therefore, allocate wastes from remedial actions or corrective actions against available capacity prior to those being injected.

Finally, as noted in section (II)(A)(2)(b) of this preamble, significant quantities of waste will be generated as impoundments comply with the requirements of section 3005(j) of RCRA, and either close or retrofit the impoundment to meet the minimum technology standards of section 3004(o). It appears that in most instances, the wastes generated from these impoundments will be handled and treated on-site, thus placing a further demand on these "package" systems.

Accordingly, the Agency rejects the argument that sufficient on-site capacity can be developed using on-site package units or systems to accommodate the volumes of waste currently being generated. Such systems are not currently available in sufficient numbers, cannot be manufactured in sufficient numbers in the short-term, and may not be capable of meeting BDAT standards. Moreover, the capacity which can be provided by these systems will be used by wastes resulting from CERCLA and RCRA cleanups, and by impoundments complying with section 3005(j).

Another source of on-site capacity which commenters suggested EPA had not adequately considered was the reuse, recycling, and/or minimization of wastes. EPA has investigated the extent to which these options might provide capacity by reducing demand, but has found little to suggest that any significant reductions in volumes could be achieved in the near future through their use. EPA expects that the implementation of the land disposal prohibitions will provide further incentives to pursue these management options. The ability of these processes to reduce the volumes of the very dilute wastes which are typically injected, however, appears to be quite small since often these streams already undergo one or more recovery steps prior to injection.

2. Assumptions Used to Establish Quantity of Waste Requiring Treatment

One commenter objected to several assumptions the Agency used to establish the quantity of waste requiring treatment. This commenter and several others contended that the Agency was attempting to systematically overestimate the amount of waste requiring treatment and underestimate the amount of treatment or other capacity available. The specific objections and concerns raised by these commenters follow.

a. Assumptions on Concentration of the Waste. A commenter specifically objected to an assumption made in the Agency's April 8, 1988, and May 17, 1988, proposals concerning cyanide and metal bearing wastes disposed of in surface units. The Agency has stated that in the absence of concentration data, EPA would assume that the waste exceeded concentration levels listed in the statute.

The commenter pointed to data used in the capacity analyses for injected wastes to support the contention that this assumption considerably overstates the quantity of restricted California list waste disposed of in surface units. The commenter suggested that this overestimation of demand for alternative capacity from wastes disposed of in surface units directly affects the accuracy of the capacity analyses for injected wastes, since these analyses build on determinations made for waste disposed of in surface units.

The Agency believes the comment raises legitimate concerns, but believes an examination of new data from the Agency's ongoing Treatment, Storage, Disposal, and Recycling (TSDR) Survey mitigates the concern in two ways. First, using the TSDR data, the amount of waste being disposed of in surface units is dramatically less than was identified by the Agency in earlier estimates of waste quantities. The commenter's concern centered, in part, on the Agency overestimating the volume of surface disposed waste. On May 17, 1988, EPA applied the TSDR data to surface disposed waste and adjusted the effective prohibition dates as appropriate (53 FR. 17578 *et seq.*). Thus, with the improved data used in those capacity analyses, one basis for the commenter's concern is largely no longer valid. Similarly, the survey data improves the Agency's quality of data on waste concentrations, further reducing the range of uncertainty and with it the volume of waste which could be incorrectly attributed in this analysis.

Moreover, many of the wastes listed in the "First Third" would be California list wastes at higher concentrations. For example, K062 wastes would, at appropriate concentrations, also be considered as California list wastes, both by virtue of the metals content and the presence of hexavalent chromium. Thus, the distinction between whether or not a metal bearing waste is at concentrations sufficiently high to make it a California list waste is most relevant when the prohibition dates vary by the concentration of the waste. In the case of injected waste, however, the prohibition date for both California list and "First Third" wastes is August 8, 1988 (although wastes covered under the "First Third" may be subject to the "soft hammer"). Accordingly, the volume of injected cyanide or metals requiring treatment on that date is, to some extent, independent of the concentration

since much of the low concentration metal and some cyanides are picked up by the "First Third" category. (It should be noted that capacity determinations conducted for injected waste avoided double counting between wastes in the "First Third" and the California list wastes whenever possible.)

b. Volumes of Waste not Considered in the Analysis. The Agency believes that the commenter's contention that EPA has intentionally or systematically overestimated the volumes of waste requiring treatment is without foundation. Indeed, EPA's assumptions in estimating the demand for treatment from traditionally generated hazardous wastes have been conservative. However, there are significant volumes of wastes (including those containing metals and cyanides) which the Agency has not included in earlier capacity analyses or the TSDR Survey, which more than offset these conservative assumptions. As noted in this section, wastes resulting from surface impoundments which are closing pursuant to section 3005(j) have not been included; liquid wastes from CERCLA and RCRA cleanups have not been included; and leachate collected from leachate collection systems has not been included. One corporation estimates that the volume of leachate they generate exceeded 400 million gallons annually under the current regulatory framework. The Agency has also not considered the very substantial demands on treatment capacity resulting from the requirements of section 3004(g)(6). Under this section, operators of surface impoundments or landfills which dispose of wastes subject to the "soft hammer", (i.e., wastes listed under either the "First Third" or "Second Third" for which the Agency has not established BDAT) are required to treat their waste using the best method practically available which reduces waste toxicity or mobility. In most cases, these treatments would be precisely those methods specified as BDAT for other wastes covered under either the "First Third" or section 3004(f).

The Agency believes, therefore, that on the whole, the assumptions regarding volumes of waste disposed have been conservative, and tend to understate demand rather than overstate it. In addition, concentrations would seem to have little effect on whether a waste volume exceeds the available capacity, given that injected wastes are often subject to the same deadline, independent of concentration. This is so because in many cases, the statute applies the same deadline to a concentrated California list waste and a more dilute version of the same waste covered under the "First Third".

c. Waste Streams Which Vary in Levels or Concentrations. A commenter objected to assumptions the Agency made regarding wastes which varied in character, particularly in the case of corrosives, again contending that the assumption overstated the amount of waste requiring treatment. The commenter particularly objected to counting an entire stream of waste as corrosive even though the pH might vary—occasionally exceeding the prohibition level of 2, and sometimes falling below it.

In response, the Agency would like to note that in defining whether or not a waste was deemed to be a hazardous waste (or similarly, whether it is considered a California list waste) the Agency has chosen to take the most stringent interpretation, i.e., that if a waste varies in concentration or characteristics at times, it will be classified according to the highest concentration or, in the case of corrosive wastes, the lowest pH values.

To do otherwise would be to substantially reduce the volumes of waste subject to the ban—an approach which would be inconsistent with the intent of the statute. The Agency believes that the mandate of the HSWA amendments was to discourage land disposal in favor of minimization, recycling or treatment, unless such land disposal can meet the very stringent standards of section 3004 (d), (e), (f), and (g). Therefore, the EPA believes that the appropriate course of action is to take a conservative approach in determining when a waste is subject to the prohibition and would therefore require treatment. Any attempt to segregate when the waste was subject to the ban and when it was not would be extremely difficult to implement. The Agency has chosen to make the determination inclusive, and, therefore, believes it appropriate to count the entire volume of a restricted waste stream against available capacity. Moreover, the available data on the pH of injected waste streams does not indicate a high degree of variability.

Accordingly, the Agency acknowledges the assumption that an entire stream is subject to the prohibition when the characteristics of the waste vary may maximize the demand on treatment or other alternative capacity. However, it also maximizes the amount of waste subject to the prohibition—a result that is protective and most consistent with the statutory mandate.

This same commenter, in a related comment, objected to the EPA's approach to quantifying the amount of hexavalent chromium being land disposed. The Agency counted the total volume of chromium bearing waste as hexavalent, unless it was known with certitude that the waste stream contained only chromium in its trivalent state.

Again, the Agency believes it appropriate to be conservative in estimating total volumes of waste required to be restricted. This approach is particularly appropriate in the case of chromium, since it can easily change from trivalent to hexavalent under appropriate conditions. Moreover, as with other categories of waste, the volumes which are or will be managed as a result of site cleanups vastly exceeds available alternative capacity; thus, under the allocation decisions outlined in section (II)(A)(1) of this preamble, the shortfall in capacity becomes even more critical.

d. Double Counting of Wastes. One commenter, consulting a study performed by a contractor to identify the quantity of waste being injected, noted that the contractor's report made no attempt to segregate out waste streams which would be assigned to more than one schedule (Ref. 3). The commenter also objected to an assumption that was made in the report regarding waste segregation. Basically, the report assumed that waste streams could not be further segregated when there was no data to suggest otherwise. Again, the commenter contended that these assumptions tended to overstate the amount of waste requiring treatment on a given prohibition date.

The Agency would like to note that while the report made no attempt to segregate wastes by schedule, both the TSDR Survey (used for surface disposed waste on the May 17, 1988 capacity analyses) and the report used as the basis for the April 26, 1988 proposal on injected wastes, identified waste streams at the point of generation (Refs. 2 and 3). When there are "as generated" waste streams which contain wastes subject to different prohibition dates, the issue is which prohibition date to select when counting the waste against available capacity. In most instances, it is necessary to count the entire stream against available capacity according to the date the waste is first prohibited. Take, for example, a given solvent waste stream prohibited from land disposal on August 8, 1988. If it also contains a sufficiently large volume of a toxic characteristic waste which is prohibited on May 8, 1990, to render any

biological treatment infeasible, then effectively, the entire stream may have to be treated by the earliest date. Since the Agency's analysis was based on waste as generated, this is often the case when a multi-constituent waste stream subject to different schedules is being evaluated.

Similarly, many wastewater treatment systems are volume limited—that is, the system must be designed to handle the entire volume of flow, regardless of when in a regulatory schedule the various wastes contained in the generated waste stream may fall. If a million gallon per day waste stream is run through a steam stripping unit to extract HOCs for subsequent combustion, it does not matter that some component of the waste stream is not banned on the same schedule as the HOCs; the system must still be able to handle a million gallons per day.

3. Large Volume Waste Streams

The Agency outlined in its proposal several problems associated with high volume waste streams which served to limit the availability of alternative capacity. These included the lack of a means of transporting large volumes of waste, the unavailability of tanks of sufficient size and of appropriate materials to handle wastes, the difficulty of managing large volumes of residuals, the difficulty of obtaining needed State and local permits, and the potential operational problems associated with injecting treated wastes.

a. Occurrence of Large Volume Waste Streams. Commenters pointed out that large volume waste streams are not unique to injection wells and noted that surface facilities handling California list wastes had already successfully met the statutory hammers, in many cases without a variance to the effective date. One commenter noted that many of these surface units managed volumes that were as large as many of those being injected. They concluded from this that injection wells could also make the deadline.

The Agency believes the commenter has overlooked several important points. First, as the commenter's own data show, the percentage of surface units handling large volumes as a fraction of all surface units is much less than the percentage of injection wells which do. While the absolute number of surface units is larger than the number of injection wells, problems unique to large volume flows affect a larger proportion of injection wells. For example, using the commenter's own data, only 9% of surface facilities disposed of corrosives in excess of 25 million gallons per year, while 59% of the injection wells handling corrosives exceeded this amount. Similarly, less than 3% of the surface units disposed of cyanide wastes in excess of 25 million gallons per year, while 89% of the injection wells did. Data on other California list wastes show similar differences. To the extent that the problems outlined for large volume facilities limit the availability of treatment, a disproportionate number of injection wells would be so limited.

Second, wastes in impoundments which comply with section 3005(j) and meet minimum technology requirements may no longer be subject to land disposal prohibitions. Thus, facilities which choose to double line their impoundments may, in many cases, no longer face the prohibition and therefore no longer require treatment. In this way, sizable quantities of waste have been treated in place without placing demand on tank supply and transportation, without generating huge additional volumes of residuals, without requiring additional State and local permits, and without substantially altering the engineering of related above ground appurtenances. The same cannot be said for wastes managed in injection wells. Therefore, the commenter's conclusion—that because surface units had successfully complied with earlier deadlines the impediments outlined for large volume injected waste streams were without foundation—is not valid.

Finally, the very substantial demands of wastes resulting from RCRA—and to a lesser degree CERCLA cleanups, were not competing for tank and other capacity before July of 1987, when these surface units were complying with the land disposal prohibitions. The Agency is now issuing permits and implementing corrective action, and has expanded the number of sites on the National Priorities List. EPA has noted earlier the extremely large volumes of wastes these actions are and will be generating over the next two years. The Agency's analysis of these quantities show them to be much larger than the volumes associated with California list wastes disposed of in surface units. The volumes of injected wastes requiring alternative capacity occurs in addition to these cleanup wastes.

Accordingly, the Agency believes that these commenters were in many ways "comparing apples with oranges" in their analyses and believes, further, that the considerations raised in the proposal relative to injected large volume waste streams pose very real and substantial impediments to the availability of alternative capacity.

b. Transportation as a Limit on Availability of Capacity. Although most commenters agreed that for large volume waste streams transportation served to limit available alternative capacity, a few commenters objected to this contention. One commenter maintained that the increase in hazardous waste requiring transportation as a result of these rules was very small compared to the amount of hazardous *materials* being transported now. This same commenter went on to note that barges could increase capacity by one third, although they noted that only six of the largest 200 TSD facilities could be served by barge. The commenter indicated that the additional increment of waste requiring transport represented less than a 1% increase in the amount of hazardous materials currently being transported.

The focus of the commenter's argument is that ultimately transportation could be made available as market forces and manufacturing capabilities catch up with the demand created by the displaced wastes. References quoted by the commenter suggest that this adjustment could take as little as six months. In investigating this issue, the Agency consulted a number of sources. Some suggested that transportation capacity could indeed be available in as little as six months, while several others suggested that transportation would limit the availability of alternative capacity for considerably longer (Refs. 3, 4 and 5). None found that the capacity to transport injected wastes would be available upon the prohibition date. EPA agrees with the commenter's contention that market forces could ultimately provide incentive for the transportation industry to develop additional capability, but data available to the Agency indicates this will take some time certainly more than six months, and likely closer to two years.

The same commenter maintained that the suggestion that transportation might limit the availability of alternative capacity violated the statute in two ways. First, they contended that this decision was somehow regional in nature, and second, they asserted that the Agency was invoking economics in the determination. First, a clear reading of the proposal should make obvious that the analysis is national in scope. Second, the Agency is indicating that the limited amount of transportation *physically* prevents capacity from being available. EPA is not suggesting that transportation is prohibitively expensive, but simply that it does not now exist, and will not for the short term. As noted in the April 26, 1988 proposal, until market forces and

manufacturing do catch up with the increased demand, transportation is "effectively unavailable".

c. Delays in Availability of Capacity Resulting from Permitting. In the proposal, the Agency indicated that the need to acquire local and State permits for treating the wastes and managing the residuals could also serve to limit the availability of alternative treatment.

One commenter suggested that permits would not delay the availability of alternative capacity since in most cases RCRA permits would not be required for treatment systems or for sites to handle the residuals from these systems. The commenter then went on to analyze federal permitting requirements and correctly note that, in general, tanks used as "elementary neutralization units" and "totally enclosed" systems do not require permits. They further noted that, in most cases, the Agency specified treatment levels, and not specific methods when establishing BDAT. They concluded from this that operators could select treatment methods which would not require discharge to surface waters. In this way they contended that operators could select treatment options which would avoid the necessity of obtaining a National Pollutant Discharge Elimination System (NPDES) permit.

Avoiding developing new treatment capacity which might require an NPDES permit from consideration, as the commenter suggested, would have the effect of substantially reducing potential new capacity, particularly for the dilute waste streams which are typically injected. Thus, the commenter's suggestion that by avoiding treatment methods which would require an NPDES permit, operators could comply more expeditiously with treatment methods, would actually remove substantial amounts of capacity from consideration and therefore bolster the case for a capacity variance, rather than limit it.

More importantly, EPA was addressing the need to acquire *local* and *State* permits, in addition to federal permits. Federal RCRA and NPDES permits are required for many treatment facilities and can serve to delay availability of treatment. Similarly, local and State permits are required for most facilities which manage hazardous waste. These permits, too, can substantially delay the availability of alternative capacity. The commenter's analysis ignored the effect that local permit requirements could have on limiting capacity, and therefore did not address one of the main impediments the Agency outlined in its proposal. The Agency continues to believe that compliance with local and State requirements in constructing treatment units and managing residuals does serve to limit the availability of alternative capacity.

Furthermore, the commenter's suggested solution—that EPA grant national capacity variances under section 3004(h)(2) on a local or case-by-case basis—is neither practical, nor legal.

d. Delays Due to Facility Construction. The Agency noted in the proposal that the length of time required to construct facilities necessary to comply with the proposed treatment standards, or to transport wastes, could serve to limit the availability of alternative capacity. One commenter objected to this line of reasoning, noting that the prohibitions have been a matter of public knowledge since the statute was enacted, and that for many wastes, the specified BDAT standards have been available for several years. The commenter noted that planning cycles supplied by industry show that for solvents and many other wastes, adequate time was available to construct required facilities. Nevertheless, such capacity has not become available; therefore, the time required to develop, supply, and construct such capacity is an appropriate consideration in establishing effective dates.

4. Adequacy of Capacity Data

Commenters objected to the use of the 1981 RIA Mail Survey and updates of that survey as the basis for establishing volumes of alternative capacity available. Commenters contended that the survey was dated and that the information was no longer accurate.

As noted earlier, the Agency has recently completed a national survey on treatment, storage, disposal and recycling facilities (the TSDR Survey, Ref. 2). The Agency has evaluated the proposed capacity variances and effective dates contained in the April 26, 1988, proposal against this new data. In the majority of cases, the new data corroborates the decisions proposed in April (see 53 FR 14892 *et seq.*). In those cases where it does not, EPA will not establish final rules setting effective dates, but will repropose such decisions based on the new information contained in the TSDR Survey.

B. Comments Not Relevant to This Rulemaking

Comments were also received on the Agency's proposals for setting effective dates for the prohibitions regarding surface units, and its proposal for evaluating petition demonstrations from injection wells. The Agency has or will consider these comments in the context of these rules to the extent appropriate, and not as part of this rule.

III. Summary of Today's Rule

This section outlines the Agency's determinations of effective dates for California list wastes and certain "First Third" wastes. As noted earlier, the capacity analyses in the April 26, 1988, proposal were based on the best information available at that time. The Agency has subsequently obtained data from the ongoing comprehensive TSDR Survey which provides more up to-date information, particularly with respect to the volume of alternative capacity available nationally.

As outlined in section (II)(4) of this preamble, the Agency has examined the decisions proposed on April 26, 1988, using this updated data. In most instances, EPA has determined that the proposed effective dates are appropriate, and is proceeding to set these dates as part of today's final rule. In other instances, the new information suggests that the proposed dates are not appropriate. In these cases, the Agency will repropose the effective dates as expeditiously as possible. The conclusions reached have changed only for three low volume "First Third" wastes (K016, K019, and K030). EPA's conclusions regarding the availability of capacity for these three injected wastes will be proposed and finalized with the so called "Second Sixth" wastes (i.e., those "First Third" wastes for which BDAT standards were first proposed on May 17, 1988; see 53 FR 17578 *et seq.*). In the mean time, these wastes will be subject to the "soft hammer" provisions of section 3004(g)(6). In the sections which follow, EPA initially compares only the amount of wastes being disposed of in injection wells against available capacity. In this analysis, "available capacity" is defined as the capacity remaining after waste disposed of in surface units is applied against capacity. If the injected volume exceeds available capacity, the waste category is granted a variance and no further analysis is conducted. If, however, the available capacity exceeds the volume injected and the volume managed in surface units, the Agency must then evaluate the volume of wastes resulting from corrective actions and remedial responses. Where the Agency does not grant a variance, EPA will first assure that the alternative capacity is adequate to handle the volumes of waste projected to be generated from RCRA and CERCLA cleanups over the next two years. The Agency currently projects that between 33.9 and 71.4

billion gallons of California list wastes and "First Third" wastes will be generated by such cleanups in this time frame (Ref. 1).

Table 1 gives a summary of the effective dates for the ban against the underground injection of California list wastes and certain "First Third" wastes proposed on April 26, 1988 (other than K016, K019, and K030, which will be finalized at a later date), and today's final decision on these effective dates. Discussions of each effective date follow. In these discussions, EPA presents volume data as proposed on April 26, 1988, as well as information from the TSDR Survey.

TABLE 1

RCRA waste code	Effective date proposed on April 26	Effective date in final rule
K062	2-year variance, 8/8/90.	Unchanged.
K049–K052.	2-year variance, 8/8/90.	Do.
K104	2-year variance, 8/8/90.	Do.
K071	2-year variance, 8/8/90.	Do.
Chromium-bearing wastes.	2-year variance, 8/8/90.	Do.
Metals	2-year variance, 8/8/90.	Do.
Cyanides	2-year variance, 8/8/90.	Do.
Corrosives	2-year variance, 8/8/90.	Do.
PCBs	Prohibited, 8/8/88	Do.
HOCs	Dilute HOCs (<1%)—2-year variance, 8/8/90. Concentrated HOCs >1%)—prohibited, 8/8/88.	Do.

A. California List Wastes

1. Free Cyanides

There is a total volume of 1.36 billion gallons of cyanide wastes injected annually (Ref. 3). The data available to the Agency show that at least 170 million gallons of this waste exceeds the statutory prohibition level of 1000 mg/l, but the concentration data are not good on the remaining 1.19 billion gallons injected. The Agency believes that cyanide oxidation is the most effective method for reducing the concentration of cyanide bearing wastes to the levels specified in the statute. The cyanide oxidation capacity available for injected wastes is 162 million gallons according to the TSDR survey. The EPA identified about 64 million gallons of such capacity in the RIA survey. In either case, the Agency has determined that there is a shortfall of capacity which, when cleanup wastes are considered, is substantial.

Accordingly, EPA will provide a 2-year variance to the prohibition date for injected cyanide bearing wastes subject to the California list prohibitions. These wastes will be prohibited from injection on August 8, 1990.

2. Metals

The Agency identified 234 million gallons of injected metal wastes subject to the prohibition. The appropriate treatment for these wastes is chemical precipitation and, based on the TSDR Survey, the Agency identified 128 million gallons of such capacity available. The RIA survey and the April 26, proposal showed 163 million gallons of such capacity. Again, there is a substantial shortfall of alternative capacity under either data set.

The Agency therefore is providing a 2-year variance, and will prohibit the land disposal by injection of metal bearing wastes subject to the California list prohibitions on August 8, 1990.

3. Corrosives

There are over 1 billion gallons of corrosive wastes injected annually that are subject to the California list prohibitions. Based on the TSDR Survey, there are less than 30 million gallons of neutralization capacity available. No specific volume of neutralization capacity was identified in the April proposal, although tank capacity was seen to be inadequate. The Agency outlined in the proposal the impediments to constructing additional capacity in the short term (see Section (II) of this preamble for a thorough discussion of the comments on this point) for large volume waste streams. Again, there is a significant shortfall of alternative capacity.

In view of the lack of alternative capacity, the Agency is granting a 2-year variance to the effective date, and will prohibit the injection of corrosives with a pH less than 2 on August 8, 1990.

4. Halogenated Organic Compounds (HOCs)

On July 8, 1987, the Agency stated that HOC containing wastes subject to the California list restriction were defined by those HOCs listed in 40 CFR Part 268, Appendix III. Further, with respect to surface land disposal, EPA granted a 2-year variance for HOCs at concentrations equal to or above 10,000 mg/l. The Agency specified incineration as treatment for such wastes, and noted that there was not adequate capacity. On May 17, 1988, the Agency proposed to rescind the variances for concentrated solvents and HOCs disposed of in surface units based on substantial increases in the estimated amount of treatment capacity.

The Agency stated in the April 26, 1988 proposal that available data showed no HOCs injected at over one percent concentration, but indicated it would review any data which suggested that concentrated HOCs were injected and make capacity determinations on the basis of such data. The EPA did not receive any comments indicating that concentrated HOCs are injected, although after the comment period closed several operators indicated in the context of their "no-migration" petitions that they were injecting concentrated HOCs. Nevertheless, the volumes disposed are substantially less than the available treatment capacity. Current information show about 246 million gallons of liquid combustion capacity, the specified BDAT for concentrated HOCs.

Accordingly, HOCs at concentrations above 10,000 ppm will be banned on August 8, 1988.

The Agency specified wastewater treatment as treatment applicable to dilute HOC wastewaters that are at concentrations between 1,000 and 10,000 mg/l. (HOCs below 1,000 mg/l are not subject to California List prohibitions). On August 27, 1987, the Agency indicated that 85 million gallons of dilute HOC wastewaters above the statutory concentration levels (1000 mg/l) are injected annually (52 FR 32451). On April 26, 1988, the Agency identified 319 million gallons of dilute HOC-containing wastewaters injected each year at concentrations above 1,000 mg/l (53 FR 14897–14898). The TSDR survey shows about 245 million gallons injected annually. The Agency had found previously that appropriate wastewater treatment capacity was not sufficient to handle injected dilute HOCs (52 FR 32450, August 27, 1987) and still believes that to be the case. Accordingly, EPA is granting a 2-year capacity variance and imposing the prohibition on injection of dilute HOC wastewaters at concentrations greater than or equal to 1000 mg/l (and less than 10,000 mg/l) on August 8, 1990.

5. Polychlorinated Biphenyls (PCBs)

At the time of the proposal, the Agency had identified 25,000 gallons of PCBs being injected, and had proposed to prohibit the injection of such wastes on August 8, 1988. Data from both the TSDR and the RIA surveys indicate that the treatment capacity for such wastes (liquid combustion) substantially exceeds the volume disposed. Furthermore, it appears that PCBs are

not injected at concentrations above the statutory prohibition level of 50 ppm. Accordingly, the Agency will prohibit the injection of PCBs on August 8, 1988.

6. Chromium Wastes

In the April 26 proposal, the Agency proposed to grant a capacity variance to the prohibition on injection of chromium wastes covered by the California list. In that notice, EPA identified approximately 105 million gallons of waste above the statutory ban level. An additional 237 million gallons is being injected, but the Agency does not have data on the concentration levels of these chromium-bearing wastes (Ref. 3). EPA cannot determine how much of the 237 million gallons may exceed statutory ban levels, but available information does indicate that the entire volume of the waste is above the suggested lower levels listed on August 12, 1987 (52 FR 29998). The Agency believes a treatment train consisting of chromium reduction, chemical precipitation, and settling or filtration is the best method of achieving the statutory concentration levels. The latest information shows approximately 109 million gallons of chromium reduction capacity for injected wastes (Ref. 2). The April 26 proposal identified only 35 million gallons of such capacity. Despite the increase in capacity, EPA believes the most prudent course of action, given the uncertainty about the total volume of waste injected at levels subject to the ban, the considerations of limited transportation, impending additional wastes from the "Second Third," the competing demand for capacity from section 3004(u) and CERCLA wastes, and the difficulty of managing residuals from large volume waste streams is to grant a capacity variance for this waste stream. Accordingly, EPA is today granting a 2-year variance from the prohibition and banning the injection of chromium wastes subject to section 3004(f) on August 8, 1990.

B. Selected "First Third" Wastes

1. K062

On April 26, the Agency published capacity determinations for K062 wastes (See 53 FR 14899). This waste is spent pickle liquor from steel finishing operations. In that proposal, EPA indicated that a 2-year capacity variance was warranted because the volume of waste requiring treatment exceeded the available treatment capacity. As indicated, the Agency expected at that time to complete a survey which would provide better data on both the volume of wastes being land disposed, and the available treatment capacity. Based on this more recent analysis (Ref. 2), the Agency believes that the volume of waste being disposed of in surface land disposal units still substantially exceeds the capacity available to treat these wastes. EPA's latest analysis indicates that 128 to 148 million gallons of K062 are injected each year (Refs. 2 and 3).

The BDAT for injected K062 wastes consists of chromium reduction followed, in many cases, by neutralization. The TSDR Survey identified approximately 109 million gallons of chromium reduction capacity and 30 million gallons of neutralization capacity available for injected wastes. The Agency also has information that suggests that extremely large volumes of "derived from" K062 are being generated from RCRA and CERCLA groundwater cleanups and from leachate collection systems (Ref. 1). In view of this, the Agency believes there is a substantial shortfall in capacity. Accordingly, EPA will provide a 2-year variance from the prohibition date and ban the land disposal by injection of K062 wastes unable to meet the BDAT treatment standard on August 8, 1990.

2. K049–K052

The Agency has proposed to grant 2-year variances to the effective date prohibiting disposal of the K049–K052 wastes (certain petroleum refining wastes) in either surface units or injection wells (see 53 FR 11776, April 8, 1988 and 53 FR 14899, April 26, 1988). More recently, the Agency reexamined these analyses for surface disposed wastes (see 53 FR 17578 May 17, 1988). Based on this, the Agency retained its proposal to grant 2-year variances from the prohibition dates for surface disposed wastes and ban such disposal on August 8, 1990. This decision is based on the 133.5 million gallons of these wastes disposed of in surface units annually (Ref. 2) and the decision rule to allocate the applicable BDAT treatment capacity for these streams (sludge combustion and stabilization) to other "First Third" surface disposed wastes.

An assessment of the data available to the Agency at this time shows an additional 400,000 more gallons of K050 being deep well injected than was indicated in the April 26, 1988, proposal. In addition, this data indicates that approximately 100,000 more gallons of K049 waste are being injected than was previously thought (Refs. 2 and 3). The estimated amounts of injected K051 and K052 wastes made on April 26 remain unchanged. Based on the limited treatment available, and the decision to allocate available treatment first to surface wastes, the Agency will grant 2-year variances to injected K049–K052 wastes unable to meet the BDAT treatment standards. They will be prohibited from injection on August 8, 1990.

3. K104

Wastes categorized as K104 are combined wastewater streams generated from the production of nitrobenzene and aniline. In the April 26 notice, EPA identified just under 13 million gallons of this waste being injected each year and proposed to grant a 2-year capacity variance based on lack of adequate treatment capacity (see 53 FR 14899). The TSDR Survey indicates that nearly 57 million gallons of K104 are being injected each year. The Agency has identified BDAT for K104 as solvent extraction followed by steam stripping and activated carbon adsorption. The Agency has identified only 1 million gallons of solvent extraction capacity available for injected wastes. EPA, therefore, believes the capacity variance proposed on April 26, 1988, to be appropriate and will grant a 2-year variance from the August 8, 1988, deadline. Under today's rule, K104 wastes not meeting the BDAT treatment standards will be prohibited on August 8, 1990.

4. K071

On April 8 and April 26 the Agency proposed to grant a capacity variance to the prohibition against both the surface disposal and underground injection, respectively, of K071 wastes (brine purification muds from the mercury cell process in chlorine production) (See 53 FR 11777 and 53 FR 14899).

The TSDR Survey results do not change the volumes or capacity determinations made on April 26 for injected K071 wastes. BDAT for this waste has been identified as acid leaching followed by chemical oxidation, dewatering of sludges and sulfide precipitation of metals in the effluent. The Agency believes that there is inadequate capacity to treat this waste (Ref. 2), and therefore believes the capacity variance proposed on April 26, 1988, to be appropriate. Land disposal by injection of K071 wastes not meeting the BDAT treatment standards will be prohibited on August 8, 1990.

IV. Regulatory Requirements

A. Regulatory Impact Analysis

Executive Order 12291 requires EPA to assess the effect of contemplated Agency actions during the development of regulations. Such an assessment consists of a quantification of the potential benefits and costs of the rule.

as well as a description of any beneficial or adverse effects that cannot be quantified in monetary terms. In addition, Executive Order 12291 requires that regulatory agencies prepare an analysis of the regulatory impact of major rules. Major rules are defined as those likely to result in:

1. An annual cost to the economy of $100 million or more; or

2. A major increase in costs or prices for consumers or individual industries; or

3. Significant adverse effects on competition, employment, investment, innovation or international trade.

The Agency has performed an analysis of the regulation to assess the economic effect of associated compliance costs for both the California list and the "First Third" list wastes (Refs. 6 and 7). Total compliance costs of the entire California list and "First Third" list regulations (i.e., those being finalized today as well as those which will be proposed in the near future) are estimated at $41.9 million, or $11.8 million annualized. Alternate treatment costs are estimated to total $36 million ($11.44 million annualized) and petition costs are estimated to be $5.9 million ($0.42 million annualized). The California list wastes and selected "First Third" wastes being addressed today are included in these costs. These costs indicate that the rule does not constitute a major rule under Executive Order 12291.

B. Regulatory Flexibility Analysis

Pursuant to the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, whenever an agency publishes a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions). This analysis is unnecessary, however, if the agency's administrator certifies that the rule will not have significant economic effect on a substantial number of small entities.

Owners and operators of hazardous waste injection wells are generally major chemical, petrochemical and other manufacturing companies. The Agency is not aware of any small entities that would be affected by this rule. Section 148.1(c)(3) of the regulatory framework for this rule exempts any small quantity generator, as defined in § 261.5, from the underground injection prohibitions proposed in that framework. The Administrator certifies that this rule will not have significant economic effects on a substantial number of small entities. As a result of this finding EPA has not prepared a formal Regulatory Flexibility Analysis.

C. Paperwork Reduction Act

The information collection requirements in this rule have been approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*) and have been assigned OMB control number 2040–0042.

V. References

(1) Estimated Quantity of Extracted Ground Water—RCRA Facilities and CERCLA Sites: 1988–1990; Report to U.S. EPA, ICF Incorporated, July 1988.

(2) Background Document for First Third Wastes to Support 40 CFR Part 268 Land Disposal Restrictions, First Third Waste Volumes, Characteristics, and Required and Available Treatment Capacity—Part II; U.S. EPA, OSW, May 1988.

(3) Findings on Class I Hazardous Wells Affected by the Land Ban Rules; Temple, Barker and Sloane, December, 1987.

(4) Evaluation of Availability of Alternate Treatment and Disposal Capacity for Injected Hazardous Wastes; Tischler/Kocurek for the Chemical Manufacturers Association, October 1987.

(5) Comments of the Chemical Manufacturers Association on EPA's Proposed Rule Regarding Hazardous Waste Disposal Injection Restrictions; Chemical Manufacturers Association, October, 1987.

(6) Regulatory Impact Analysis of Proposed Hazardous Waste Disposal Restrictions for Class I Injection of California List Wastes, EPA Report, Contract No. 68–03–3348; Cadmus Group, Inc., October 1987.

(7) Regulatory Impact Analysis of Proposed Hazardous Waste Disposal Restrictions for Class I Injection of First Thirds List Wastes, EPA Report, Contract No. 68–03–3348; Cadmus Group, Inc., October 1987.

List of Subjects in 40 CFR Part 148

Administrative practice and procedure, Confidential business information, Environmental protection, Hazardous materials, Hazardous materials transportation, Hazardous waste, Intergovernmental relations, Reporting and recordkeeping requirements, Waste treatment and disposal, Water supply, Water pollution control.

Dated: August 5, 1988.

Lee M. Thomas,

Administrator.

Therefore Chapter I of Title 40 is amended as follows:

PART 148—HAZARDOUS WASTE INJECTION RESTRICTIONS

1. The authority citation for Part 148 continues to read as follows:

Authority: Section 3004, Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*

2. Section 148.12 is added to read as follows:

§ 148.12 Waste specific prohibitions—California list wastes.

(a) Effective August 8, 1988, the hazardous wastes listed in 40 CFR 268.32 containing polychlorinated biphenyls at concentrations greater than or equal to 50 ppm or halogenated organic compounds at concentrations greater than or equal to 10,000 mg/kg are prohibited from underground injection.

(b) Effective August 8, 1990, the hazardous wastes listed in 40 CFR 268.32, other than those listed in paragraph (a) of this section, are prohibited from underground injection.

(c) The requirements of paragraphs (a) and (b) of this section do not apply:

(1) If the wastes meet or are treated to meet the applicable standards specified in Subpart D of Part 268; or

(2) If an exemption from a prohibition has been granted in response to a petition under Subpart C of this part; or

(3) During the period of extension of the applicable effective date, if an extension is granted under § 148.4 of this part.

3. Section 148.14 is added to read as follows:

§ 148.14 Waste specific prohibitions—First Third wastes.

(a) Effective August 8, 1990, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K049, K050, K051, K052, K062, K071, and K104 are prohibited from underground injection.

(b) The requirements of paragraph (a) of this section do not apply:

(1) If the wastes meet or are treated to meet the applicable standards specified in Subpart D of Part 268; or

(2) If an exemption from a prohibition has been granted in response to a petition under Subpart C of this part; or

(3) During the period of extension of the applicable effective date, if an extension is granted under § 148.4 of this part.

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